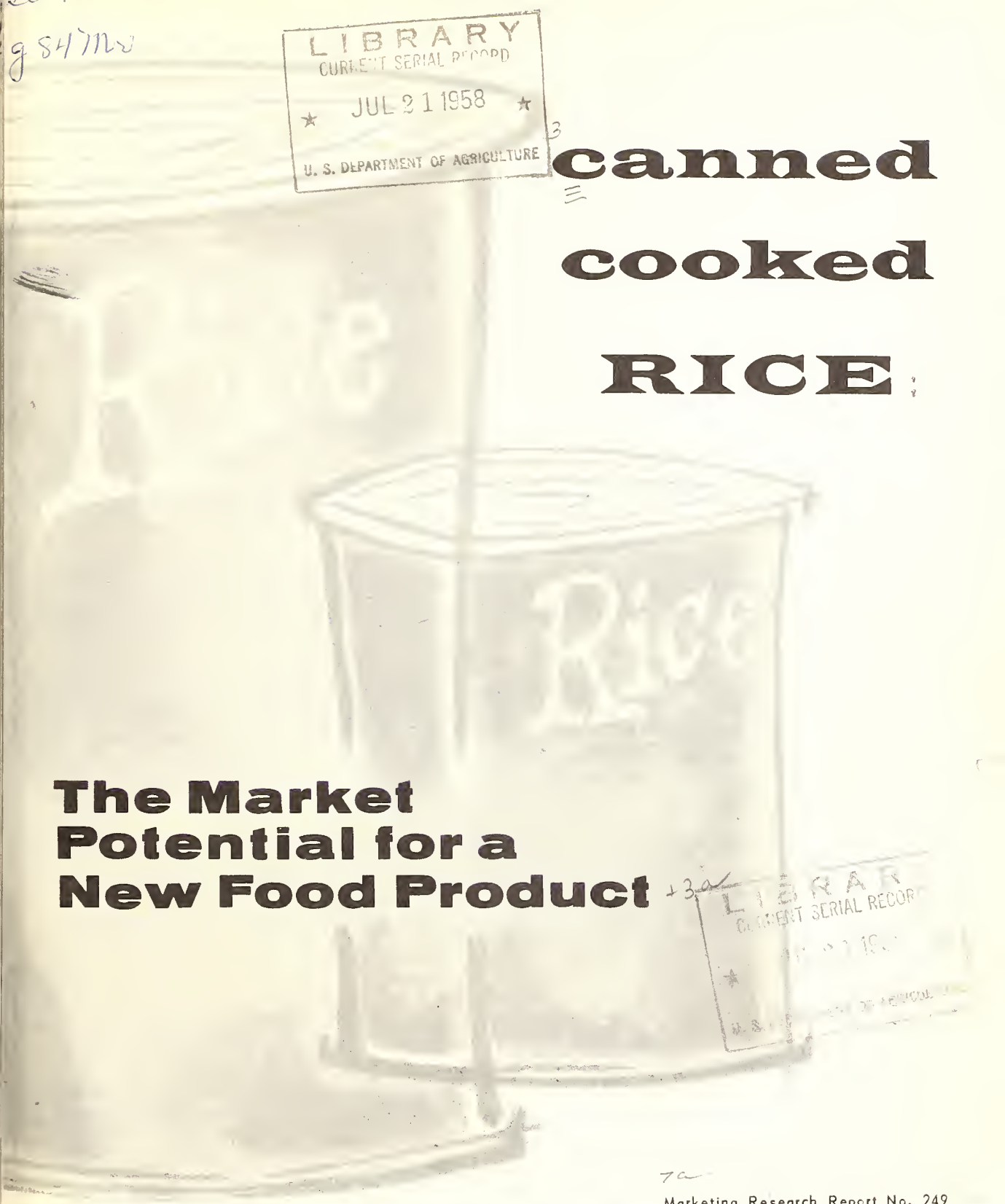
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The Market Potential for a New Food Product

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Marketing Research Report No. 249
UNITED STATES DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service
Marketing Research Division
Washington, D. C.

PREFACE

The research on which this study was based is part of a broad program designed to help increase sales and broaden the markets for food and farm products. The information concerning the sales position and consumer acceptance of this new form of canned cooked rice should be helpful to potential processors and handlers of the product and should help increase the domestic consumption of rice.

The study was conducted by the Market Development Branch, Agricultural Marketing Service, under the general supervision of Marshall E. Miller and Trienah Meyers. The Western Utilization Research and Development Division, Agricultural Research Service, under the general supervision of George O. Kohler, provided guidance on technical matters relating to processing and canning of the test product.

Philip B. Dwoskin and Daniel B. Levine, of the Market Development Branch, are due special acknowledgment for their consultation throughout the study. David J. Fitch supervised sales audits of the product in the retail food stores.

The new product was developed by the Western Utilization Research and Development Division, under the supervision of Ernest B. Kester. Jackson E. Simpson and Marjorie Kershaw helped plan the in-store demonstrations and train the demonstrators. Robert E. Ferrel adapted the laboratory process of canning rice to plant scale and supervised the canning of the product for the market test. Elsie H. Dawson, Institute of Home Economics, Agricultural Research Service, helped develop the recipes for using the new product.

Thanks are due to personnel in the advertising department of the Fresno Bee, who provided information about the characteristics of the test market.

The California Rice Export Corporation provided the funds for preparing and promoting the new product.

July 1958

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CANNED COOKED RICE

The Market Potential for a New Food Product

[By Robert V. Enochian, J. Scott Hunter, and Roland G. Harris 1/
Market Development Branch
Agricultural Marketing Service

SUMMARY

A new process for partially cooking and canning rice has been developed by the Western Utilization Research and Development Division, Agricultural Research Service. The result is an easy-to-prepare, convenient form of cooked rice. A market test of this new form of rice, prepared from California short-grain rice, was undertaken in Fresno, Calif., in April-September 1957 to ascertain its sales position and consumer acceptance.

Sales of "Insta Rice," the name given the new product, averaged about eight number 303 cans per store per week for all 46 stores handling the product for the entire 19-week market test period. Sales were, of course, influenced by demonstration, promotion, and special display. Stores that used these promotional devices averaged somewhat higher sales than the rate reported for all 46 stores. This was true not only when the promotions were in progress but there were also carryover effects. Insta Rice attained a favorable sales position relative to the other quick-cooking dry rices, canned spanish rice, and canned long-grain white rice during the market test. Income and ethnic origin of the clientele served also had an effect on sales. Although stores serving low-income groups sold more rice of all kinds, on the average, than the stores serving higher income groups, the sales of Insta Rice were highest in the stores serving medium- and high-income groups.

Most store managers that had stocked the new product indicated that they would continue to carry it on a regular commercial basis if the product were promoted as often as other established rice products and if certain minor improvements were made in the product itself.

Ten weeks after the beginning of the market test a household survey was conducted with a representative sample of homemakers in the Fresno area.

Survey results showed that about one-fourth of the homemakers in the area were aware that Insta Rice was being sold in local stores and that about one-third of the aware respondents had bought the product one or more times.

A majority of the homemakers who had tried the new product expressed favorable opinions of its taste and cooking properties. About one-third of the users, however, expressed a preference for the taste and cooking properties of other forms of rice.

1/ Robert V. Enochian and Roland G. Harris are agricultural economists, and J. Scott Hunter is a social science analyst.

Survey results also showed that one-third of the users had bought Insta Rice more than one time, and that about 8 in 10 expected to continue using it from time to time.

A study made by the staff of Progressive Grocer in 5 Foodtown supermarkets in Cleveland, Ohio, in 1954 showed that average weekly sales per $20,000 of weekly store volume for the 11 dry-rice items that were stocked were slightly over 8 units. During the market test in Fresno, this figure was 4.8 units for all rice items and 4.5 units per week for Insta Rice for the last 13 weeks of the test--when the effects of the primary promotion had worn off to a large extent. This 13-week period included only a limited special promotion of Insta Rice. This promotion was more limited in scope and less frequent than the promotions made on most leading established rice products for which sales data were also obtained.

Thus, it appears that if Insta Rice were made available on a regular commercial basis and if it were promoted as often as other established rice products, it could be expected to achieve a sales rate equal to or greater than the average sales rate for all rice products sold in Fresno.

BACKGROUND

Production of rice in the United States has increased steadily from an average of 18.2 million hundredweight in 1931-35 to a record of 64.2 million hundredweight in 1954. This was followed by declines between 1955 and 1957 to 43.2 million hundredweight, due largely to production controls.

The territorial and export markets for United States rice increased from 20 percent of total production in the early 1930's to about half of the crop in 1952. Until 1953 export markets were large enough to absorb the available production above domestic needs. Beginning that year, due in large part to loss of the Japanese market, exports fell precipitously and about 25 and 23 million hundredweight were delivered to Commodity Credit Corporation stocks in 1954 and 1955, respectively. The total U. S. carryover of rice (rough basis) on August 1, 1956, was 34.6 million hundredweight with 24.7 million hundredweight of this being owned by Commodity Credit Corporation. Sharp cuts in rice acreage and sales to foreign countries under Public Law 480 have been necessary to reduce the carryover occasioned by the loss of export markets.

The readjustments required in the domestic rice industry has led rice growers and millers to seek ways of expanding the domestic market for rice to achieve a reasonable degree of stability for their industry.

One way of expanding the demand for a commodity is to enhance its appeal to consumers by developing new products offering advantages over the commodity in its usual state. Since 1949, part of the research program of the Western Utilization Research and Development Division (WURDD), Agricultural Research Service, has been the development of new and improved convenient forms of rice.

One of the new products is based on a process whereby rice is partially cooked and canned. 2/ This product offers the convenience of most quick-cooking, easy-to-prepare products. In addition, the process imparts to California short-grain rice, dry, fluffy characteristics desired by many U. S. consumers. Figure 1 shows California short-grain rice after it has been cooked and canned, and after the canned product has been heated and made ready for serving.

Members of the California Rice Export Corporation believed that this new product would help expand the domestic consumption of California short-grain rice, most of which in recent years had been sold in export and territorial markets. Before undertaking commercial scale processing and distribution of the product, however, the rice industry wanted to know what could be expected by way of consumer acceptance and rate of sales of the new product.

In April 1957, the California Rice Export Corporation arranged for a commercial canner to prepare enough of the product for the market test. The WURDD furnished technical assistance in the canning operations. A leading national advertising agency was retained by the California Rice Export Corporation to assist in the planning and carrying out of the promotional campaign accompanying the market test and the selection of a brand name and development of a label for use on the cans. The cans used for the test were size 303 and held about $11\frac{1}{2}$ ounces of the precooked product--roughly equivalent to 7 ounces of dry milled rice. A new brand name, "Insta Rice," was selected for the test product to avoid identification and consequent influence on sales if a nationally advertised brand had been used. Thus, sales of the test product are attributable to the merits of the product itself and the promotional campaign accompanying its introduction and not to previous brand loyalties.

Selection of the Test City and Its Characteristics

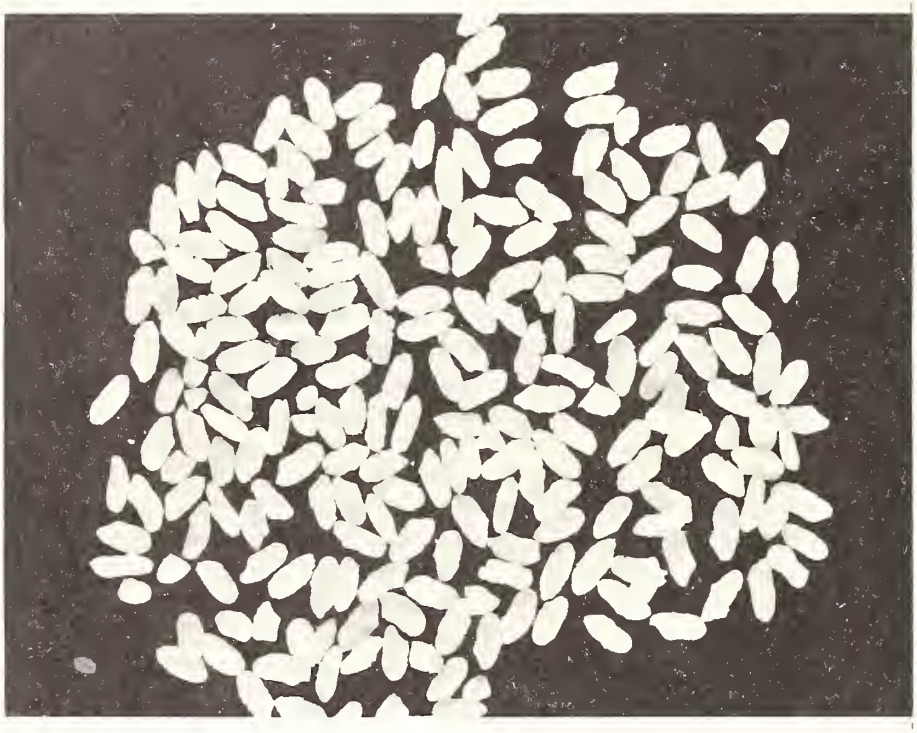
Fresno, Calif., was selected as the test city because it had the characteristics of a good test market. It is large enough to be served with the various kinds of promotional media available in other urban areas of the country, yet small enough to permit saturation and control of the market for the purpose of the experiment. In addition, Fresno is a geographically separate market, which permitted most effective use of available promotional funds.

The research department of the city's only local daily paper--the Fresno Bee--estimated the 1956 metropolitan population of Fresno to be 185,300. According to the 1950 census, about 80 percent of the population in Fresno were native-born white. Just over 10 percent were foreign-born white, of which over half were from Asia and Mexico and that part of the USSR formerly known as Armenia--all countries where people use large quantities of rice.

A median annual family income of slightly less than $4,900 was computed from the Fresno Bee's 1956 consumer analysis. The 1950 Census of Population shows 30 percent of the labor force in Fresno were women. Effective local

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2/ Roberts, R. L., Houston, D. F., and Kester, E. B. Process for Canning White Rice, Food Technol.: 7 (78-80), 1953.



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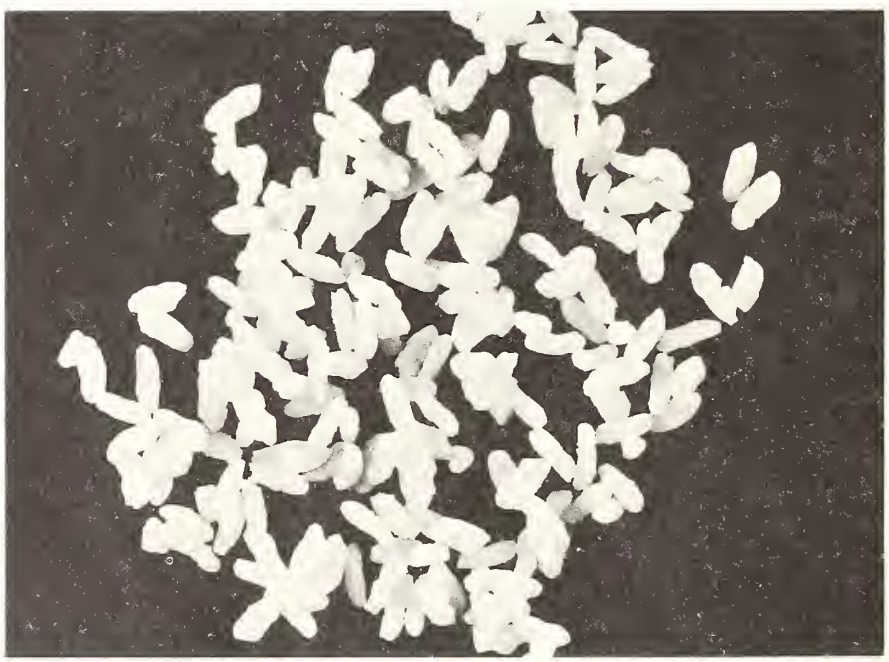


Figure 1.--California short-grain rice. Above, Processed rice as it comes from the can. Below, Canned rice prepared for serving, showing dry, fluffy characteristics.

advertising and promotional media are available within the Fresno market. Two local newspapers are widely circulated throughout the city, the Fresno Bee and a free weekly newspaper, the Fresno Guide. Broad coverage of the market is also provided by local radio and television stations.

There were 327 grocery stores in the metropolitan zone, according to the advertising department of the Fresno Bee. Of these, 38 were chain and independent stores reported as having annual sales of over $500,000 per store, 8 were independents with sales of $300,000 to $500,000 per store, and the remaining 281 were independents with annual sales of less than $300,000 each.

Market Test Procedures

It was estimated that the 46 stores with annual sales of over $300,000 each accounted for about 80 percent of the gross retail grocery business in Fresno during 1957. A stratified random sample of 24 of these 46 stores--based on type of ownership and membership in a given chain--was selected for weekly sales audits of all established rice products beginning on April 29, 1957. Two weeks later all 46 stores were stocked with the new product, Insta Rice, on a consignment basis, and the weekly sales audit in the 24 stores was continued through August 20 to yield data for 14 weeks of sales of Insta Rice and 16 weeks of sales of all other rice. Following, without interruption, was a reduced bi-weekly audit of Insta Rice and two established closely competing rice products. This audit continued for 5 weeks through September 24, when the market test was terminated and the remaining stocks of Insta Rice were withdrawn from the stores.

The price charged for Insta Rice by all retail stores during the entire market test period was 17 cents per can, or 2 cans for 33 cents. This price was based on estimates of commercial processing and distribution costs, normal wholesale and retail margins, and prices of other rice products. The price of 17 cents amply covered all items of cost and therefore reflects no special price consideration for the new product which might otherwise have placed it in a more favorable price relationship with other products in the test.

On Friday and Saturday of the first 2 weeks that Insta Rice was in the market, experienced demonstrators prepared fried rice made with the new product and served samples of it to customers in half of the 24 audit stores. Six different stores were used each week.

During the first 4 weeks, in addition to the in-store demonstrations, an intensive advertising campaign was conducted in Fresno to make consumers aware of the new product and to familiarize them with its attributes. Included in this 4-week program were: (a) Six 1,440-line (three-fifths of a page) newspaper ads in the Fresno Bee, (fig. 2), (b) twelve 1-minute participations in local women's television programs, (c) 132 radio spot commercials per week for each of the 4 weeks, and (d) special articles in the Women's Section of the Bee. In addition, point-of-sale advertising material, including display cards, shelf talkers, tear-off recipe pads, and reprints of the newspaper ad, were used along with displays in each of the stores stocking the product.

A secondary promotion of Insta Rice was conducted during the 9th and 10th weeks of the market test. Thirteen of the stores, 7 of which were audit stores, advertised Insta Rice in their Thursday, July 11th and 18th, ads in the Fresno Bee or the Fresno Guide. Some of these stores were in the same chain; hence, only 6 printed ads appeared in the newspapers. About half of these stores also had special displays of the new product.



Neg. BN-6026

Figure 2.-Newspaper advertising (1,440 lines) used during introductory promotion. Fresno Bee, Fresno, Calif., May 16, 17, 21, 23, and 28, and June 6, 1957.

In addition, an educational program on Insta Rice was held early in the market test, in which personnel from the Western Utilization Research and Development Division described the work of the laboratory and the development of Insta Rice on a radio and television program.

Household Survey Procedures

Ten weeks after the beginning of the market test a survey was conducted with a representative sample of homemakers in the Fresno area. The purpose of this survey was (1) to provide an estimate of the effectiveness of the promotional campaign in attracting homemakers' attention to the availability of Insta Rice and in arousing their interest in trying it, and (2) to investigate the acceptability of the new product by the satisfactions or dissatisfactions associated with its use in the home.

The sample of homemakers to be interviewed was obtained by area probability sampling techniques. Since the proportion of homemakers who had used the test product was known to be small, a supplement to the basic sample was drawn. In this supplementary sample only users of Insta Rice were interviewed. These extra cases were excluded from the analysis when estimates were made from the basic sample. A total of 938 respondents were interviewed, of whom 126 were users of Insta Rice.

MARKET TEST--SALES AUDIT DATA

Total Sales of Insta Rice and Other Rice Products

A total of 333 cases of Insta Rice, each case containing 24 cans of 4 to 5 servings, was sold during the 19-week market test period--May 13 to September 21. These sales were made in 46 chain and independent supermarkets. A total of 203 cases of Insta Rice was sold in the 24 stores in which weekly sales audits were made and a total of 130 cases was sold in the other 22 stores. Sales of Insta Rice during the test period averaged slightly over one-third case per store per week for all 46 stores and averaged nearly one-half case per store per week in the audited stores. Twelve of the 24 audit stores held demonstrations of the new product for one weekend during the introductory period. These demonstrations were the primary reason for the larger sales in the audit stores.

During the 14-week period, May 13 through August 17, when weekly audits were made, a total of 71,884 pounds of rice (milled equivalent) of 8 different types was sold in the 24 audited stores. A breakdown of total sales for the 14-week period for all 24 stores by types of rice is shown in figure 3. Sales of Insta Rice, which was processed from California short-grain rice, comprised 43 percent of the total short-grain rice sales during this 14-week period.

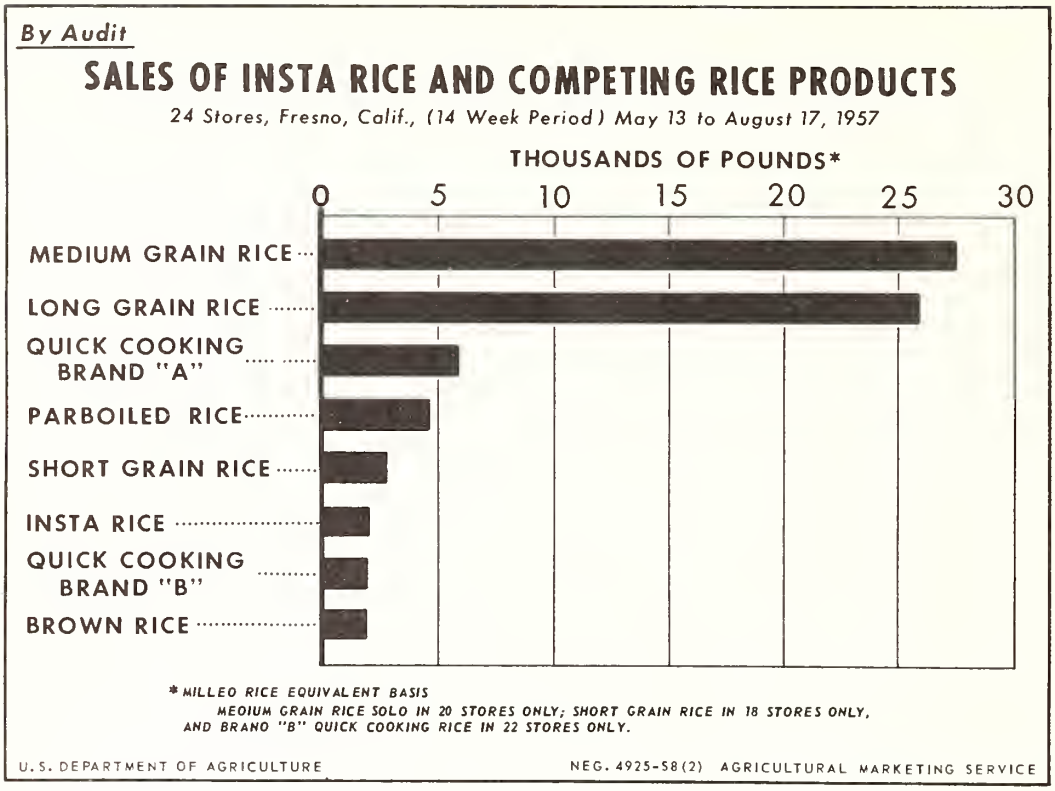


Figure 3

Average Sales of Various Types of Rice

For the 12-week period, May 27 through August 17, an average of 3.3 pounds of milled rice in the form of Insta Rice was sold per store per week through the 24 audit stores. This 12-week period was selected to eliminate the greatest effect of in-store demonstrations held during the first 2 weeks on sales of Insta Rice and thus make them more comparable to sales of other rice. The 3.3 pounds represented 12.5 percent of the sales of all quick-cooking and prepared rice and 1.5 percent of the total average weekly rice sales through the Fresno audit stores during this period (table 1). On a dollar volume basis Insta Rice sales averaged $1.30 per store per week and represented 3.2 percent of the total dollar volume for all of the rice items. Insta Rice cost consumers 39 cents per pound of milled rice equivalent. Quick-cooking rice Brand "A"--the most expensive form of rice--cost consumers 42 cents per pound and medium- and short-grain dry rice--the least expensive forms--cost consumers 10 cents per pound. Much of the medium- and short-grain rice was sold in bulk and large packages. Sales of medium- and short-grain rice in bulk form were probably higher than would be typical for such types of rice in most other cities.

Table 1.--Average weekly sales of various types of rice per audited store, in milled rice equivalents, 24 stores, Fresno, Calif., May 27-August 17, 1957

Type of rice 1/	Average weekly sales per store		Average weekly sales per store		Average price per pound
	Pounds	Percent	Dollars	Percent	Dollars
Quick cooking & prepared:					
Insta	3.3	1.5	1.30	3.2	0.39
Quick-cooking Brand "A"	17.5	7.9	7.30	18.0	.42
Quick-cooking Brand "B"	5.6	2.5	1.40	3.5	.25
Parboiled	13.6	6.1	3.30	8.2	.24
Regular dry rice:					
Long grain	77.6	34.8	15.90	39.3	.20
Medium grain	89.5	40.1	8.90	22.1	2/ .10
Short grain	10.5	4.7	1.10	2.7	2/ .10
Brown	5.4	2.4	1.20	3.0	.22
Total	223.0	100.0	40.40	100.0	1.92

1/ Brand "B" quick-cooking rice sold in 22 stores only; medium-grain rice sold in 20 stores only; and short-grain rice in 18 stores only.

2/ Much of the medium- and short-grain rice was sold in bulk and large packages, and this probably accounts for the relatively lower price per pound.

Comparative Sales Position of Insta Rice and Other Quick-Cooking Rice Products

An important consideration to rice producers and millers in introducing a new product is the effect that it will have on the sales of existing products made of the same commodity. The sales volume of Insta Rice relative to all rice sold in Fresno was too small to permit precise evaluation of what effect, if any, Insta Rice sales had on total sales of rice. Comparisons between sales of Insta Rice and two other forms of quick-cooking rice, however, give some indication of its relative position during the test period.

Figure 4 shows the weekly sales pattern of Insta Rice and two other brands of quick-cooking rice. During the first 3 weeks that Insta Rice was in the market--when there were in-store demonstrations and heavy promotions--the sales of quick-cooking rice, Brand "A", declined slightly over what they were during the 2 benchmark weeks preceding the introduction of the new product. The decline, however, was not nearly as great as the sales of Insta Rice, and in view of even greater weekly fluctuations in sales during the test period, is probably

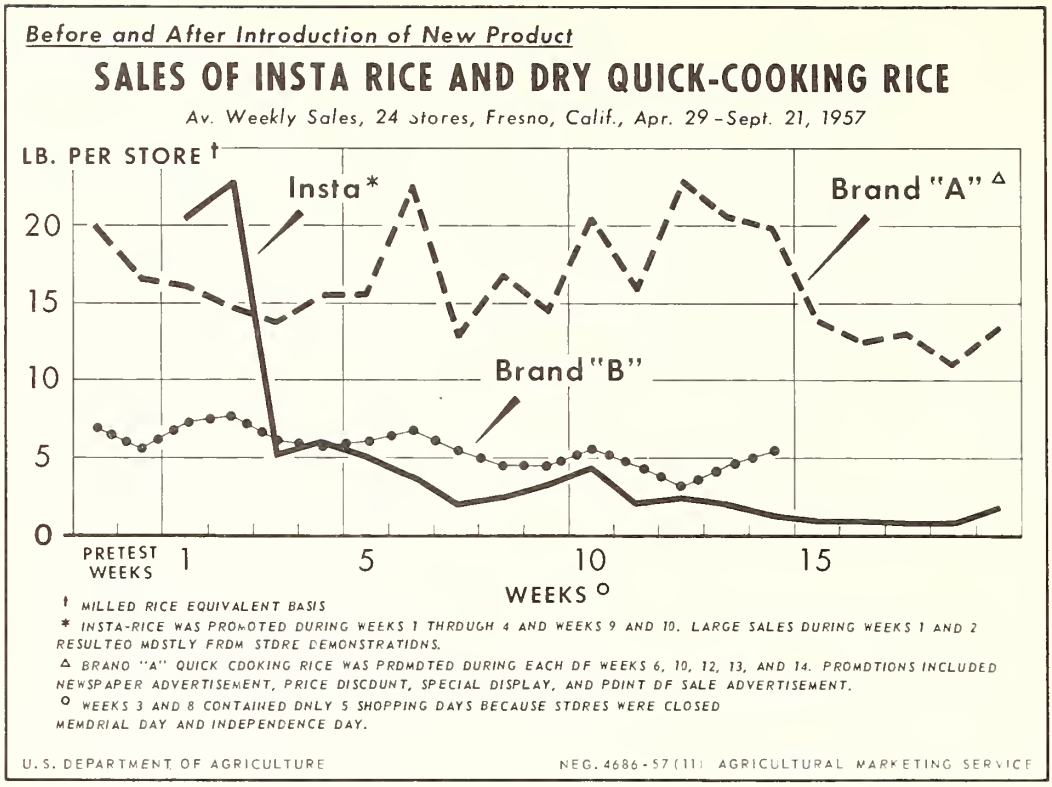


Figure 4

not significant. Moreover, the decline in sales of quick-cooking rice, Brand "A", began during the second pretest week, before Insta Rice was introduced. Sales of quick-cooking rice, Brand "B", showed an increase during the first 2 weeks that Insta Rice was in the market. During the 9th and 10th weeks, when some of the stores had special promotions on Insta Rice, there was an increase in the sales of Insta Rice with no apparently related change in the sales of the other 2 brands of quick-cooking rice. Brand "A" quick-cooking rice was also promoted during the 10th week. On the basis of these limited data, Insta Rice appeared to result in a net addition to total sales of quick-cooking rice products. However, no firm conclusions can be reached regarding the effect of its substitution from the sales audit data developed during the market test. A longer market test in several cities would permit a more precise evaluation of this question.

Sales of Various Types of Quick-Cooking and Prepared Rice in Units

The average weekly sales of 11½-ounce cans of Insta Rice per store, for the 24 audit stores, compared with sales of 5- and 8-ounce packages of dry quick-cooking rice and 16-ounce cans of spanish rice and long-grain rice, are shown in figure 5. The data in this figure should be of particular interest to

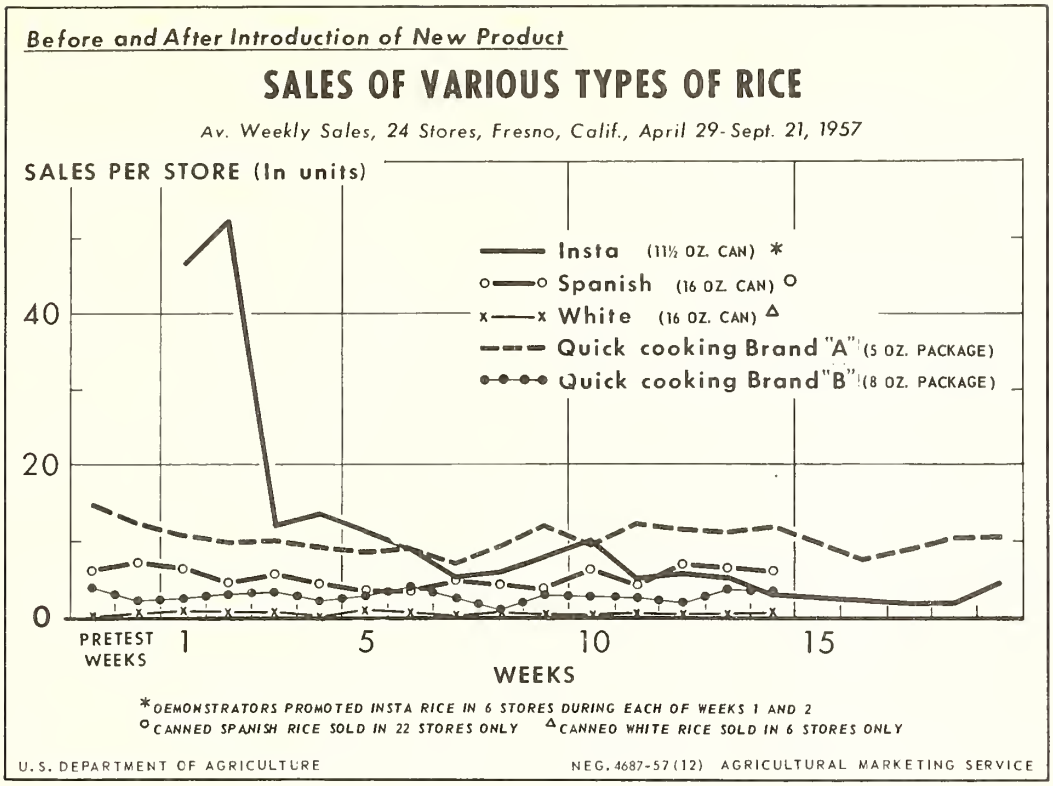


Figure 5

potential processors and handlers of the new product. These data show that for the first 6 weeks of the market test--during which there were store demonstrations for the first 2 weeks and intensive advertising for the first 4 weeks--sales of Insta Rice were higher than sales of any of the other quick-cooking and prepared rices including 5-ounce packages of quick-cooking rice Brand "A". For the first 11 weeks of the test, sales of Insta Rice were higher than for 8-ounce packages of quick-cooking rice, Brand "B", canned spanish rice, and canned long-grain white rice. The sales of Insta Rice, after the 11th week, were considerably below those of quick-cooking rice Brand "A" and below the previous average rate of sale of canned spanish rice but remained above the previous average rate of sale for quick-cooking rice Brand "B" and canned long-grain white rice. At all times, the per store average weekly sales of Insta Rice remained well above the average rate of sale of canned long-grain white rice, which was the only other type of canned white rice in the market. Canned long-grain white rice, however, was sold in only 6 of the 24 audit stores, usually as an adjunct to specialty Chinese foods.

Sales of Rice Through Stores Serving Various Income and Ethnic Groups

Sales of Insta Rice varied widely by stores. When the stores are grouped according to income of clientele served, the sales of Insta Rice were highest in the medium-income stores and lowest in the low-income stores 3/. This is shown in table 2, which shows a similar sales pattern for other quick-cooking and specialty rices. The sales of regular milled rice of various grain lengths, and thus total rice sales per store, were highest in the low-income stores. All of the low-income stores in Fresno are located in the west side of the city which is inhabited mostly by people of Japanese, Chinese, Negro, and Mexican extraction. Since these groups consume large quantities of rice, it is not likely that they would purchase regularly a product such as Insta Rice in spite of the advantages of quick preparation, primarily because of firmly established eating habits and because Insta Rice was considerably higher in price than regular dry rice.

Table 2.--Average weekly sales of various types of rice, in milled rice equivalents, by stores in different income areas, Fresno, Calif., May 27-August 17, 1957

Type of rice	Average weekly sales per store by income area					
	Quantity			Percentage of sales		
	Low	Medium	High	Low	Medium	High
	Pounds	Pounds	Pounds	Percent	Percent	Percent
Quick-cooking & prepared:						
Insta	1.7	4.0	2.3	21	50	29
All dry quick-cooking	13.5	26.2	16.7	24	46	30
Parboiled	6.6	14.1	13.3	19	42	39
Regular dry rice:						
Long grain	185.2	62.2	53.5	61	21	18
Medium grain	525.2	11.3	6.6	97	2	1
Short grain	38.8	4.0	2.1	86	9	5
Brown	3.7	6.0	4.2	27	43	30
Total	774.7	127.8	98.7	77	13	10

There are several specialty stores and fish markets on the west side of Fresno that sell large quantities of bulk rice. There are also several small specialty stores in other sections of Fresno that sell large quantities of bulk rice and cater to a sizable Armenian population in those sections. None of these specialty stores was included in the market test; therefore, any estimate of average weekly sales of bulk rice per store for all Fresno grocery stores from the sample used would represent a smaller proportion of bulk rice sales than if specialty stores had been included in the audit.

3/ Grouping of stores according to income of clientele served was based on information obtained from the Fresno Bee.

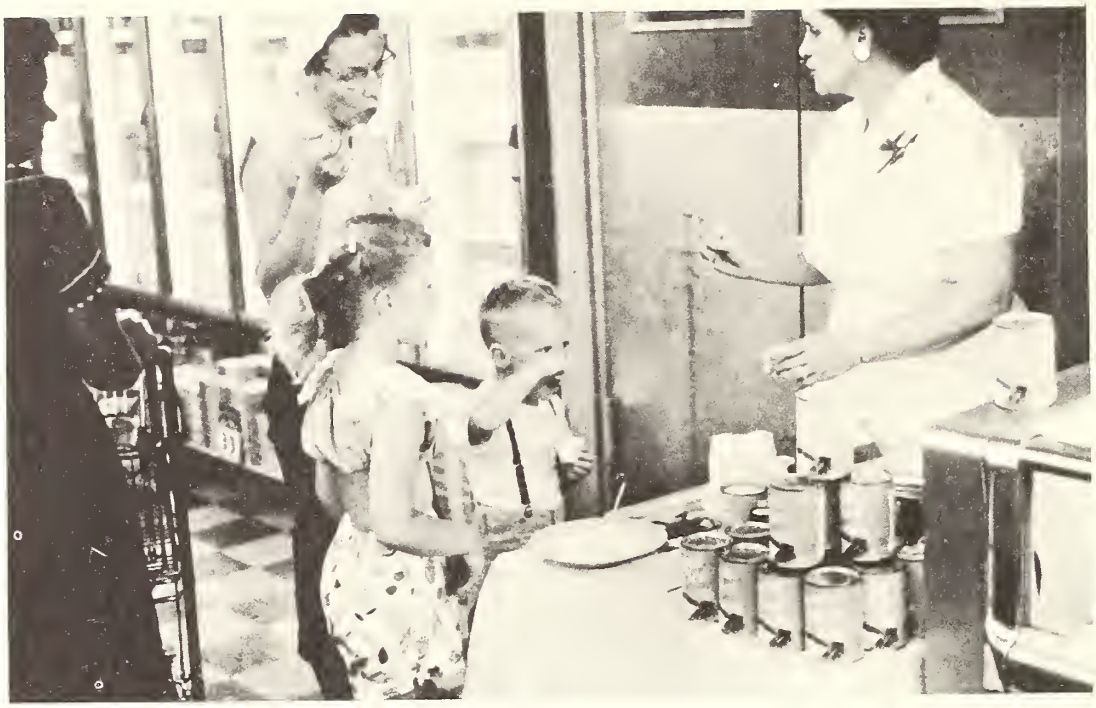
Effects of In-Store Demonstration, Secondary Promotion, and Special Display

Store demonstrations (fig. 6 and 7), during which customers were given samples of fried rice prepared from Insta Rice, had a definite influence on sales. This influence is shown in figure 8. In addition to the increased sales during the weeks in which demonstrations were held, there was a carryover effect of demonstrations to other weeks. On the average, the demonstration stores were slightly larger in gross sales volume than the nondemonstration stores. However, when the data were adjusted for this difference in sales volume, the carryover effect of demonstration remained apparent. For the entire 14-week period, the adjusted sales of Insta Rice per store for 12 demonstration stores averaged approximately 27 cans per week higher than such sales in 12 nondemonstration stores. Sales from the 11th week on--after the greatest effect of demonstration had had ample time to wear off and after the special promotion was held--averaged two cans more per store per week for the stores in which demonstrations had been held. This increase in average sales of two cans per store resulting from demonstration persisted when sales were compared through the 19th week, so the carryover effect of demonstration lasted throughout the entire audit period.



Neg. BN-6027

Figure 6.--Store demonstration of Insta Rice showing also point-of-sale advertising card and a basket display. Fresno, Calif., May 17, 18, 24, and 25, 1957



Neg. BN-6028

Figure 7.--Store demonstration of Insta Rice, indicating the appeal of the product to various age groups, Fresno, Calif., May 17, 18, 24, and 25, 1957.

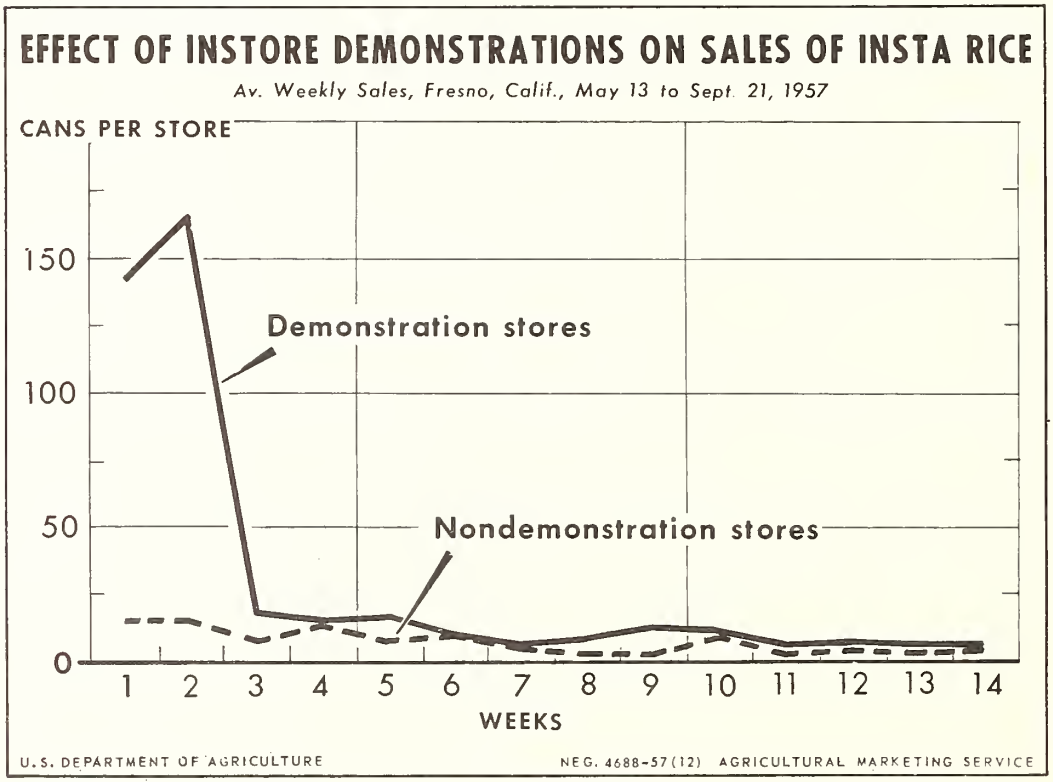


Figure 8

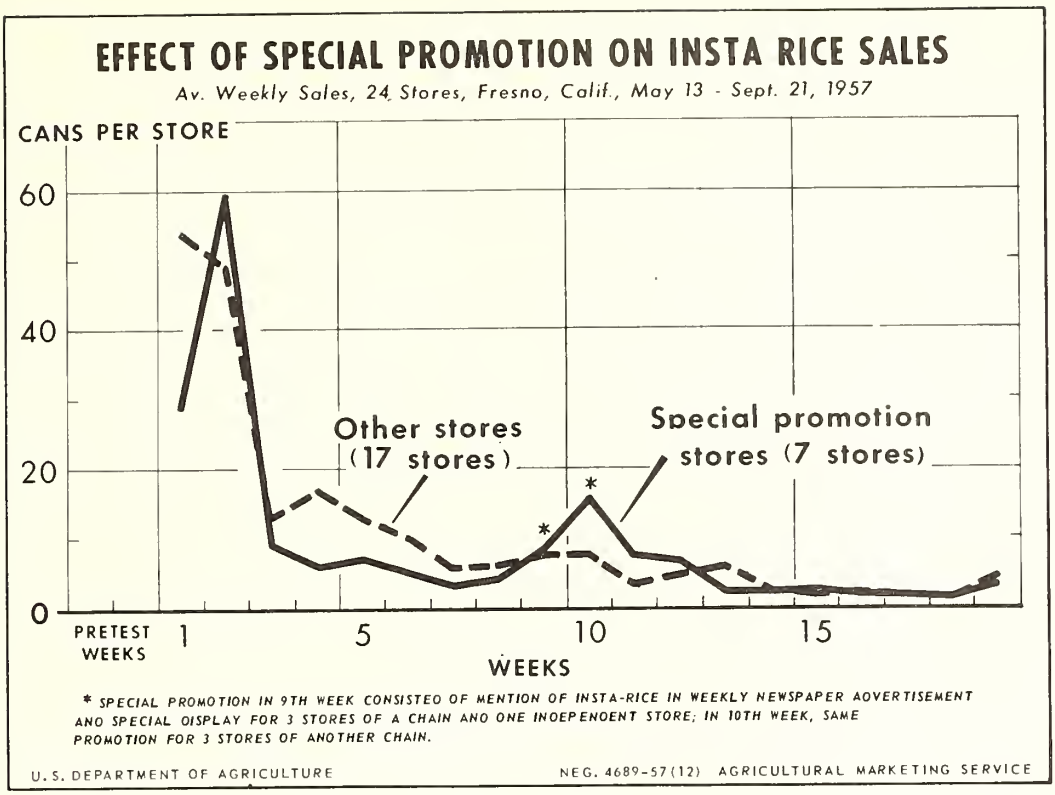


Figure 9

In addition to in-store demonstrations during the first 2 weeks of the market test, the advertising campaign lasted through the first 4 weeks and there were special promotions during the 9th and 10th weeks. Some of the effects of this advertising and promotion are apparent in figures 4, 5, and 8, which show, as might be expected, higher sales during these periods than during the periods in which there were no promotions.

In figure 9, sales through stores having special promotions during the 9th and 10th weeks are compared with those not having promotions. Both groups of stores show an increase during the special promotion. These special promotions included mention of the product in the regular weekly newspaper food ads for 7 stores and special displays in about half of these stores. These promotions apparently had some effect on stimulating sales even in the 17 stores that did not advertise, but the effect was greatest in the stores that did the advertising. During the 9th and 10th weeks, sales in the stores that held special promotions were nearly three times higher than the average sales in the same stores for the 3 weeks immediately preceding the special promotion. A similar promotion during a market test of frozen grapefruit sections in Erie, Pa., in 1954 resulted in sales 3 to 4 times higher than sales prior to the promotion. 4/ Thus, Insta Rice sales were nearly as responsive to limited advertising and special display as were sales of frozen grapefruit sections.

4/ Branson, R. E., Jacobs, M., and Hall, R. Frozen Grapefruit Sections; Evaluating a New Product by Retail sales Audit and Household Survey. U.S. Dept. of Agr., Mktg. Res. Rpt. 110, 62 pp. illus., Washington, D. C. December 1955.

Figure 10 shows examples of two of the types of displays used for Insta Rice in the Fresno stores. Eleven of the 24 stores in which weekly sales were audited had special displays of Insta Rice during part of the survey period as well as regular shelf displays for the entire period. Special displays included end aisle, center aisle, and checkout counter displays. In figure 11, sales through stores having special displays of various sizes are compared with those having regular shelf displays. Sales are presented for the last 17 weeks only, to eliminate the greatest effect of the in-store demonstrations held during the first 2 weeks. For the entire 17-week period the sales of Insta Rice per store for the group of stores having special displays part or all of this period averaged 8 cans per week compared with $4\frac{1}{2}$ cans for the stores with regular shelf displays.

Sales of Insta Rice as Related to Size of Display

In figure 12, the average weekly sales of Insta Rice per store are compared with the amount of display space allotted to the new product during the same week. During the first 2 weeks, Insta Rice sales were sizable in relation to display space largely because of demonstrations.

Sales of the test product were closely related to size of display throughout the test. 5/ The results show that sales of Insta Rice tended to increase when the amount of display space allotted to the product was increased. However, because the range in size of display was so small (average size of display ranged from about 3/4 to 1-1/4 cubic feet for weeks 3 through 14) and because effects of other variables on Insta Rice sales were not measured separately, no firm conclusions can be reached with regard to the amount sales could be expected to increase with a given increase in display space.

Evaluations of Insta Rice by Store Managers

At the end of the market test, managers of the stores that had stocked Insta Rice were asked, "If Insta Rice is made available on a regular commercial basis, would you continue to stock it?" The answers are summarized in table 3.

Of the 41 managers asked this question, 10 indicated they would continue to stock Insta Rice and an equal number indicated they would not. Four managers replied that they did not know. The remaining managers qualified their answers by making their decision dependent upon certain conditions. Most of these indicated they would continue to stock Insta Rice if the product were promoted more regularly. A few other store managers said they would continue if the product were improved in various ways.

There was no apparent correlation between the answers given and the income level or ethnic origin of the clientele served by the stores.

5/ Correlation between sales and display space can be taken as differing significantly from zero because the correlation coefficient (r=.76) is more than twice its standard error (S_r=.20).



Neg. BN-6029

Figure 10.--(A) Regular shelf display of Insta Rice, Fresno, Calif., May 13-September 24, 1957. (B) A checkout counter display--one of the types of special displays used for Insta Rice, Fresno, Calif., May 13-September 24, 1957.

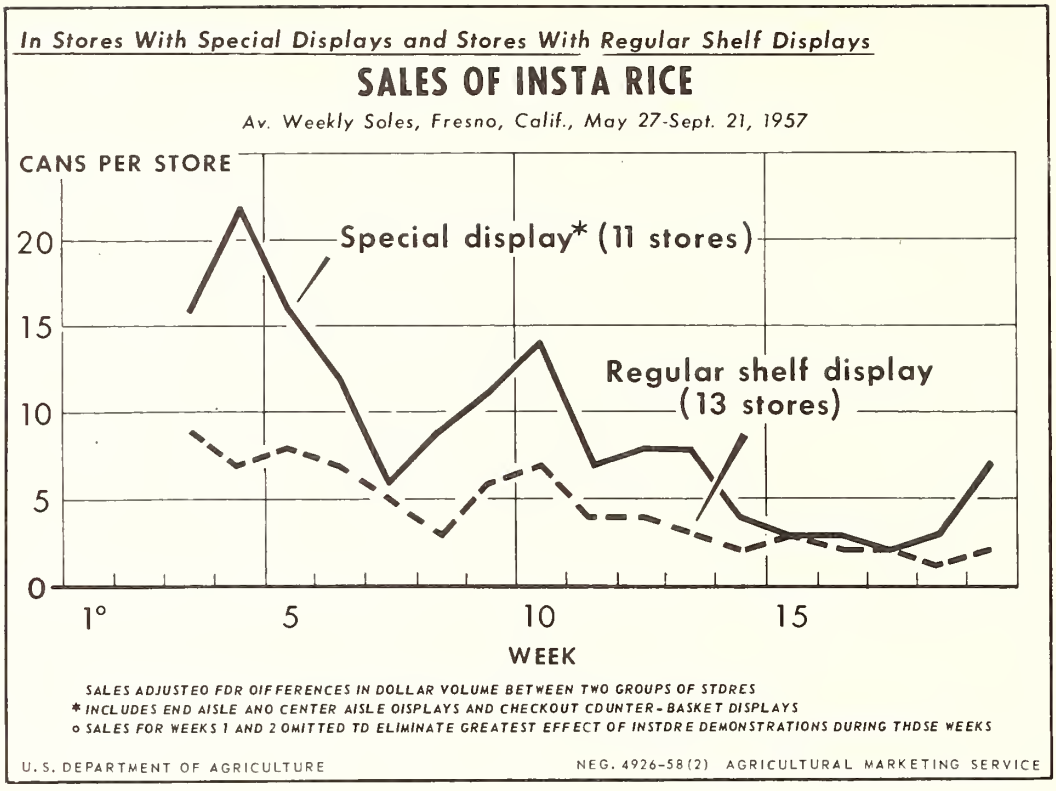


Figure 11

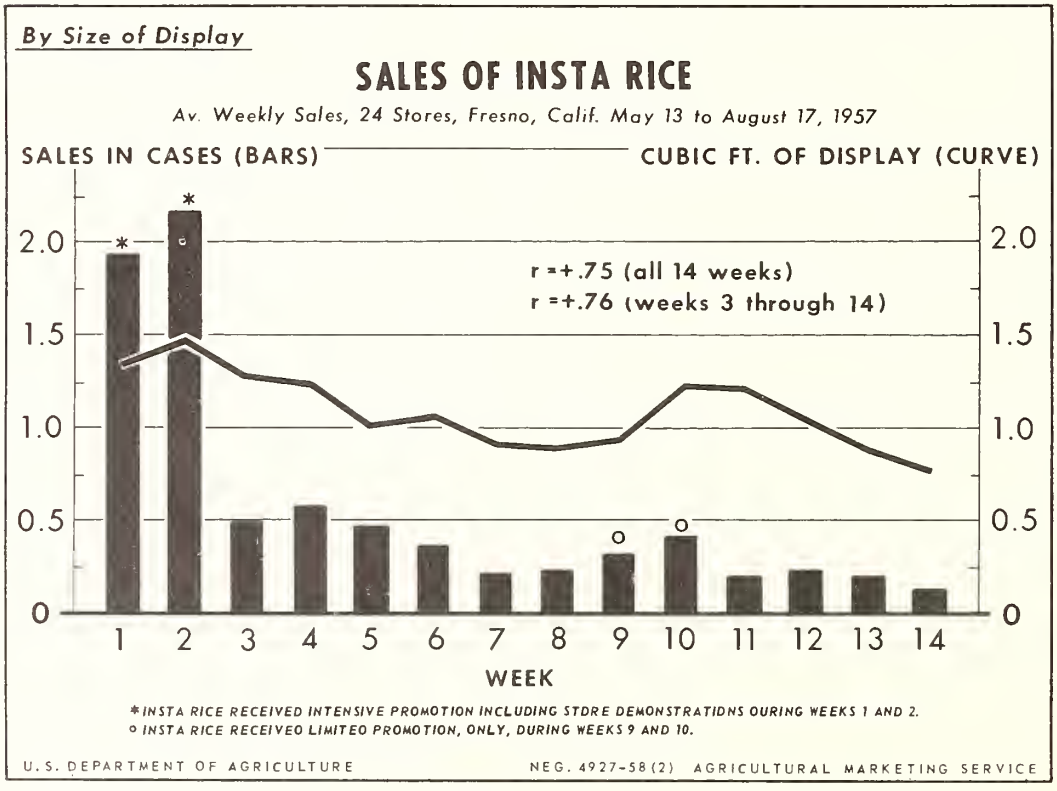


Figure 12

Table 3.--Replies of retail store managers to the question: "If Insta Rice is made available on a regular commercial basis would you continue to stock it?"

Question and response	Number
Those that answered "yes" gave the following reasons:	
Unqualified	3
Sales as high as many other items	3
It sold very well	2
No complaints from customers	1
Sorry to see it go	1
Total	10
Those that answered "no" gave the following reasons:	
Sales were too slow	4
Doesn't save time	2
Other (price too high, rice in cans won't sell, etc.)	4
Total	10
Those that "didn't know" gave the following reasons:	
Haven't watched sales	3
Sales were slow	1
Total	4
Those that answered "perhaps" or "yes" or "no" with a condition said they would continue to stock Insta Rice if the following things were done:	
If product was promoted more heavily or more frequently	13
If product was improved	6
Too hard to get out of can and break up (3)	
Too gummy (2)	
Dries out if left standing after cooking (1)	
If product was packaged instead of being canned	1
Other	1
Total	21
Grand total	1/ 45

1/ Forty-one managers were interviewed, but some gave more than one reason.

THE CONSUMER SURVEY

Effectiveness of Promotion

The promotional campaign which was conducted during the first month of the 2 months preceding the consumer survey has been described earlier in this report. This section is concerned with the effectiveness of these promotional efforts in making homemakers aware of the availability of Insta Rice and in creating consumer interest in buying the product.

Consumer awareness of the availability of Insta Rice.--Survey results show that about one-fourth of the homemakers in the Fresno area were aware of the availability of the test product. To minimize the possibility of over-estimating the awareness rate due to confusion of the name, Insta Rice, with that of some other quick-cooking rice, an "aware" homemaker was defined as one who knew that the product was being sold in local stores and was also able to identify the label on an Insta Rice can.

At the beginning of the interview, therefore, respondents were told that the study concerned homemakers' opinions of a new rice product which had been developed in Government laboratories. Then they were asked if they had seen or heard of this new product. Forty-five percent of the respondents said that they had, but when they were asked whether this kind of rice was being sold in Fresno, only 30 percent thought that it was. Finally, when respondents were shown an actual-size color picture of the can, 27 percent still said it was the rice they had in mind. Several homemakers who were unable to identify the label explained that they thought the interviewer had meant another brand of "instant" rice (appendix, tables 5, 6, 7).

The awareness rate was related to such background characteristics of the respondents as income level, education, and race. Those in the middle and upper income groups, those with more years of formal education, and white homemakers were more likely than homemakers in other groups to have been aware of the promotional campaign (appendix, table 8).

Sources of awareness of the availability of Insta Rice.--Just over 4 homemakers in 10 who were aware of the availability of Insta Rice reported that their attention had been attracted through radio or television commercials and newspaper advertising. Special displays of the product in retail stores caught the attention of almost 4 in 10. Demonstrations, which were made only in selected stores, drew the attention of about 3 aware homemakers in 10 (appendix, table 9).

Although least effective in attracting the attention of large numbers of homemakers, this last promotional method was more successful than the others in creating interest in buying the product. Nearly half of the homemakers who saw the store demonstrations decided to buy it, compared with about one-third of the homemakers who saw store displays and one-fourth who heard of Insta Rice through radio or television commercials and newspaper advertisments (appendix, table 10).

Incidence of use of Insta Rice.--Survey results show that about 9 percent of all the homemakers in the Fresno area had bought Insta Rice one or more times during the period that preceded the survey. This proportion is, of course, about one-third of the homemakers who were aware that the rice was being sold (appendix, table 11).

This result may be compared to the results obtained during the market test of a new form of dehydrated mashed potatoes. The study was conducted in the Binghamton, New York, area in the summer of 1956, and survey results showed that about 14 percent of the homemakers in the test city area had bought the new potato product one or more times during a period of about 5 weeks preceding the survey. 6/

	Insta Rice	Potato Flakes
	Percent	Percent
Aware of availability.....	27	50
Bought the product.....	9	14

In comparing these results it should be borne in mind that about three-fourths of the users of the mashed potato product used potatoes in some form one or more times a week, whereas only about one-fourth of the users of Insta Rice use rice this frequently.

Although awareness of the product was related to most of the background characteristics of the homemakers, use of the product was not. Roughly the same proportions of homemakers in each income and educational group and in households of different size had bought Insta Rice one or more times. The only characteristic related to use of the product was race; only white homemakers had used it (appendix, table 11).

Nor was there any relationship between use of Insta Rice and frequency of use of other forms of rice or to the use of regular, quick-cooking, or spanish rice. In this report, homemakers who served rice five or more times a month are considered frequent users; those who served it two to four times a month are referred to as moderate users; and those who served it once a month or less are referred to as infrequent users. Homemakers in each of these groups were about equally likely to have bought Insta Rice. And about the same proportions of users of regular, quick-cooking, and canned spanish rice had served Insta Rice one or more times (appendix, table 11).

Homemakers' Opinions of Insta Rice

To be successful a new product should compare favorably with forms of the commodity currently in use and should also seem to provide some additional satisfactions to tempt consumers to shift loyalties or to increase total consumption of the product. The advantages which Insta Rice is presumed to have are that it

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6/ Dwoskin, Philip B., and Jacobs, Milton. Potato Flakes, a New Form of Dehydrated Mashed Potatoes. U.S. Dept. Agr. Mktg. Res. Rpt. 186, 54 pp., illus. Washington, D.C. 1957.

can be prepared quickly and that the light, fluffy results generally preferred by homemakers are easily obtained. This section describes homemakers' opinions of the taste and cooking properties of Insta Rice, their experiences in preparing it, and their feelings about its cost relative to the cost of other forms of rice.

Taste and cooking properties of Insta Rice.--A majority of the homemakers who had used Insta Rice were at least as well satisfied with the taste and cooking properties of Insta Rice as they were with these characteristics of the rice they ordinarily used. A sizable minority, however, felt that canned rice was inferior in these respects to other forms of rice. Insta Rice users were asked, "As far as taste is concerned which do you like better--canned rice or the rice you ordinarily use?" In reply:

43 percent said they liked the taste of Insta Rice and the taste of other forms of rice equally well;
18 percent said they preferred Insta Rice;
36 percent said they liked the taste of other forms of rice better;
3 percent, not ascertained.

On the whole there were favorable reactions to its cooking properties. Respondents were asked, "Do you feel that the canned rice cooks up as well as the rice you ordinarily use?" In response to this question:

71 percent said that Insta Rice cooks up just as well as other forms of rice;
25 percent said that other forms are better;
4 percent, not ascertained.

Twenty-two of the 32 critical respondents described Insta Rice as "hard" or "dry" or "not cooked enough", and 10 of the 32 were critical for the opposite reason: They said the rice was "mushy," "gummy," or "not fluffy."

Since nearly all of the homemakers reported that they had followed the cooking instructions printed on the label, these quite opposite types of complaints may appear somewhat puzzling. The homemakers themselves were unable to account for the unsatisfactory results. About 1 in 4 felt the cooking instructions should be changed. But when they were asked in what way they should be changed, only half of those who felt a change was needed had any suggestions; 6 said the rice needed more water, and 8 thought the rice should be cooked longer.

Not all homemakers are equally good cooks, but one of the advantages of Insta Rice is the simplicity of preparing it. Further work may, therefore, be required to devise cooking procedures or instructions that will insure more uniform results or which satisfy individuals with preferences for a softer or firmer rice.

In the discussion of these dissatisfactions with Insta Rice, no mention was made of the fact that the product is a short-grain rice. Nine out of 10 homemakers who were aware of the existence of rice of different grain lengths

and who expressed a preference for a particular grain length favored long-grain rice chiefly because, when cooked, it is light and fluffy. Nevertheless, none of the critical homemakers attributed their dissatisfaction to the length of the Insta Rice grains (appendix, tables 12, 13, 14, and 15).

Difficulties with the can.--In planning the study, it was anticipated that some homemakers might experience some difficulty getting Insta Rice out of the can. About a third of the users reported that this had been a problem. Most of these homemakers said the rice was packed too hard. Unless the rice can be packed more lightly, some instructions should be added to the label on how to remove the rice more easily.

Can size.--In further discussion of the can in which Insta Rice was sold, the respondents were asked several questions concerning their satisfaction with its size. Six homemakers in 10 said the can was the right size, about 2 in 10 would prefer a larger can, and 1 in 10 would prefer a smaller one.

Three-fourths of the homemakers found that 1 can provided 3 to 5 servings, and only a third of the users bought more than 1 can at a time. Since about a third of the users were not satisfied with the size of the can, it might be profitable to the canner to pack additional sizes to take care of the preferences of more homemakers.

The relative cost of Insta Rice.--In addition to a homemakers' opinions of the palatability of a food item and the convenience of preparing it, an important consideration is the cost of that item relative to the cost of a similar food. The respondents were, therefore, asked if they felt that Insta Rice was more expensive or less expensive to serve than the other forms of rice that they used.

40 percent said servings of Insta Rice cost about the same as servings of other rice;
10 percent said they cost less;
35 percent thought they cost more; and
15 percent had no opinion.

This means only that homemakers who bought Insta Rice felt that it was not too expensive or that the convenience it offered was worth the additional cost. It does not mean, however, that other homemakers felt the price was appropriate; in fact, a few homemakers who had seen the product in the stores and had not bought it mentioned the cost as a reason for not buying. In this connection, however, it should be noted that large numbers of homemakers are uncertain about the cost of rice. One study, which used a nationwide sample of households, showed that almost half of the rice users did not know the price of white rice.7/

7/ U. S. Bureau of Agricultural Economics. Rice Preferences Among Household Consumers U. S. Dept. Agr., Agr. Inform. Bul. 15, 101 pp., illus. Washington, D. C. 1950.

Outlook for Continued Use

In estimating the probable success of a new product innovation from the results of a brief market test, it is helpful to know if users of the product have been sufficently satisfied to buy it more than once, and, also if, having tried the product, they plan to continue using it. Furthermore, the relationships between replies to questions on these topics and the replies to the taste, cooking properties, cost, and difficulty with the can, provide a measure of the importance of any complaints about the product.

Confidence in this estimate of success is increased if it is also known that nonusers of the product who were aware of its availability had only incidental reasons for not having bought it, rather than a firm disinclination to use it. The aware nonusers of Insta Rice were therefore asked why they had not bought it and whether or not they thought they might try it sometime.

Repeat purchases and likelihood of continued use.--To find out whether a small number of satisfied users of Insta Rice were buying it again or whether a larger number of homemakers had bought it only once and considered it unsatisfactory, users of the test product were asked how many different times they had bought it. The replies to this question showed that:

60 percent of the users had bought Insta Rice only once;
17 percent had used it twice;
22 percent had used it three or more times; and
1 percent, not ascertained.

This result may be compared with the result obtained when the same question was asked during the market test of dehydrated mashed potatoes, which was referred to earlier in this report. 8/ On that test 62 percent of the respondents had made more than 1 purchase of the dehydrated mashed potato product, compared with the 39 percent who had bought Insta Rice more than once.

Respondents who had used Insta Rice one or more times were also asked, "If canned rice continues to be sold, do you think you would serve it again from time to time?" In reply, 83 percent said they intended to continue using the product. This result compares favorably with the 89 percent of the users of the dehydrated mashed potatoes who said they expected to continue using that product. 8/

Favorable replies to the questions concerning homemakers' intentions to continue using Insta Rice were related to favorable replies to the questions concerning the cooking properties, the taste, and the cost of the product. That is, homemakers who expressed satisfaction with these characteristics of the rice were also more likely than others to say that they planned to continue using it. Reported difficulty in removing the rice from the can had no influence on the decision; nevertheless, it seems likely that even this minor inconvenience might eventually discourage continued use (appendix, table 16).

8/ See footnote 6.

Favorable replies to the question concerning repeat purchases of Insta Rice were also related to favorable replies to the questions concerning cooking properties, taste, and cost of the product. Homemakers who were satisfied with these properties and the cost of Insta Rice were more likely than others to have bought the new product more than one time. Of the three relationships, cost considerations were least important. The relationship between repeat purchases and difficulty in removing the rice from the can was not significantly different from zero (appendix, table 16).

Reasons for not using Insta Rice.--About 2 out of 3 respondents who were aware that Insta Rice was being sold had not bought it at the time of the survey. These aware nonusers were asked for their reasons for not buying it and whether or not they thought they might try it sometime. Those who said No to this latter question were asked why they felt as they did.

The replies to the question, "Why is it that you haven't tried this canned rice?" were classified in terms of the likelihood of the respondents' future purchases of the product. This classification of the replies showed that about 2 respondents in 10 gave answers which implied an intention to try the product at some time. For example, a number of homemakers said they wanted to use up their present supplies of rice first.

About 4 respondents in 10 gave answers that indicated lack of interest in using the product. For example, a number of homemakers said that they preferred another kind of rice, that they preferred to cook for themselves, or that the canned rice costs too much. Another 4 in 10 gave answers which are ambiguous with respect to the likelihood of future purchase such as "just haven't tried it," or "don't care much for rice" (appendix, table 17).

These results suggest that only a small proportion of aware nonusers have much interest in the product. On the other hand, replies to the question, "Do you think you might try it sometime?" indicate that most of these respondents feel no strong disinclination to try it. In response to this question:

85 percent said they might try it sometime; only
13 percent said they would not; and
2 percent, not ascertained.

This result suggests that most aware homemakers who had not bought Insta Rice felt no strong disinclination to try it and that its market potential is not limited by initially unfavorable attitudes toward it.

Rice Use in the Test City

A product innovation may have a better chance of success if it is introduced in a community where similar products are widely used than in a community where the rate of use of similar products is low. A number of items were therefore included in the questionnaire to provide information on the use of other forms of rice in the test city.

Incidence and frequency of the use of rice.--Survey results show that rice is used in 9 out of 10 households in the Fresno area. The proportion of homemakers who serve rice is practically the same regardless of the family income level, the educational background or race of the homemaker, or the size of the household (appendix, table 18).

Although incidence of use is unrelated to these background characteristics of the homemakers, frequency of use is closely related to such characteristics. Homemakers in the lower income groups, those with fewer years of formal education, the nonwhite homemakers, and the homemakers with larger families serve rice much more frequently than homemakers in other groups (appendix, table 19).

Forms in which rice is used.--Nearly 8 homemakers in 10 use regular white rice, about 5 in 10 prefer one of the quick-cooking brands, and nearly 2 in 10 use canned spanish rice. Only the use of regular white rice showed any relationship to frequency of use of rice. Nine out of 10 frequent users serve regular white rice compared with 8 in 10 and 7 in 10 of the moderate and infrequent users. About 5 in 10 respondents in each frequency group use quick-cooking rice, and nearly 2 in 10 of each frequency group use spanish rice (appendix, tables 20, 21, and 22).

Rice purchases during the market test.--Homemakers who used each form of rice were asked whether or not they had bought rice in that form in the 2 weeks preceding the interview, and, if so, how much they had bought. About 3 homemakers in 10 reported that they had bought regular rice during this time period, about 1 in 10 had bought quick-cooking rice, and 2 in 100 had bought spanish rice (appendix, table 23).

As might be expected, the purchase of rice during a 2-week interval was related to frequency of use of the product. Nearly half of the frequent and one-third of the moderate users had bought regular rice during this time period, and 2 frequent users and 1 moderate user in 10 had bought quick-cooking rice. Only 1 in 10 of the infrequent users had bought regular rice and only 4 in 100 had bought quick-cooking rice during this 2 week period (appendix, tables 24 and 25).

Homemakers tend to buy regular rice in slightly larger quantities than quick-cooking rice. Out of every 10 users of regular rice about 4 buy 2 pounds and 3 buy 1 pound at one time, whereas of every 10 users of quick-cooking rice, 2 buy 2 pounds and 4 buy 1 pound at one time (appendix, table 26).

Household use of rice.--Most users of rice, regardless of how frequently they use it, serve rice as part of the evening meal, whereas only one-third of the homemakers said they served it for the midday meal. This use of the product was directly related to frequency of use with nearly half of the frequent users but only one-fourth of the infrequent users serving it at noon. About half of the rice users said they served it as a dessert. This use was also related to frequency of use; frequent users were more likely than infrequent users to serve rice in this way (appendix, tables 27, 28, and 29).

Although serving rice with the midday meal is less usual than at the evening meal, those who serve rice at noon do so about as frequently as the evening users serve it at that meal. Two homemakers in 10, for example, serve rice in the evening 5 or more times a month, and the same proportion serve rice with the midday meal this frequently. Use of rice for dessert is rather infrequent; 7 homemakers in 10 serve rice in this way no more often than once a month (appendix, table 30).

MARKET TEST FACTORS AND PRODUCT POTENTIAL

Market Test Factors

Several qualifying factors must be kept in mind for a realistic appraisal of the sales potential of Insta Rice. One factor is the time of year in which the test was conducted, April 29 to September 21, 1957. According to trade sources, rice sales are lowest during the hot weather months. Thus, it is reasonable to assume that sales might have been somewhat higher during cooler weather.

Another factor influencing the level of Insta Rice sales was the previously mentioned relatively low awareness of Fresno homemakers of the availability of the new product. A 27 percent awareness rate was obtained with approximately the same promotional and advertising effort that produced about 50 percent awareness rates in market tests of frozen grapefruit sections and potato flakes.9/ Thus, a higher awareness rate may have produced more favorable sales results. Substantial advertising efforts may be needed, however, to achieve a high level of awareness for a rice product in view of the relatively low per capita consumption of rice in many parts of the United States.

The consumer survey revealed that about one-third of the consumers who bought the product mentioned difficulty in removing it from the can. It is expected that this difficulty would partly offset the convenience features of the product, one of its intended sales points. Also, about one-fourth of the homemakers who used the product said that other rice cooked up better. Additional research to improve the product, so that it can be removed from the can with less difficulty and so that more homemakers can obtain the desired characteristics in the cooked rice, would result in greater consumer acceptance than that experienced in the test.

Product Potential

During the last 9 weeks of the market test, after the greatest effects of the promotions had time to wear off, the sales of Insta Rice per store per week averaged a little over 3 cans (fig. 5). These sales were in supermarkets with average sales of about 1 million dollars per year and average sales per store of about $20,000 per week. Thus, how does this product compare with other products?

9/ See footnotes 4 and 6.

Analysis of the sales data for all rice items included in the Fresno store audits shows that the average weekly sales per store for all rice items in Fresno were 4.8 units per $20,000 of weekly store volume during the audit period. Sales of Insta Rice for the entire 19 weeks averaged 10.7 units per week per store, but for the last 9 weeks averaged only 3.3 units. Unit sales for all rice items are presented in table 4. Rice sales were audited separately by type of rice, brand, and size of unit of sale, but average sales in units were combined in the table for 10 types of rice.

Sales during the last 9 weeks were accomplished without any promotional activity. Most of the well established commercial rice products which achieved relatively high sales rates in Fresno stores, however, were promoted from time to time during the market test. It would seem more realistic, then, to assume that a processor who introduced canned precooked rice as a commercial product, would also undertake its promotion from time to time. Using sales data in table 4 from the 7th week on, after the effects of the primary promotion--advertising and demonstration--wore off to a large extent, the average sales of Insta Rice per store were about 4.5 units per week, or very close to the average sales rate for all rice items sold in Fresno. This 13-week period included only one limited promotion of Insta Rice in 7 of the 24 audit stores during the 9th and 10th weeks. Therefore, it would appear that with only a minimum of promotional effort, a new canned cooked-rice product could achieve a sales rate equal to the average sales rate of all rice products sold in Fresno.

What is the significance of these findings to the rice industry? From the point of view of the California segment, figure 13 should be of interest. It compares the sales of Insta Rice with sales of dry California short-grain rice.

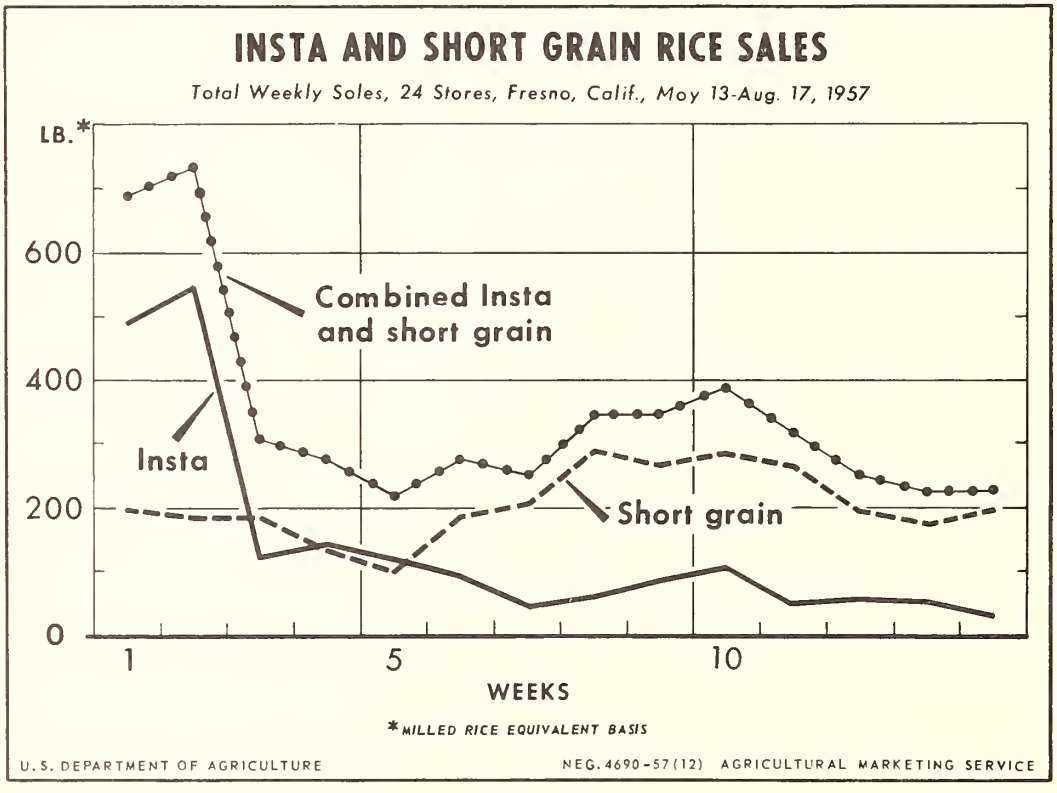


Figure 13

Table 4.--Average sales per store of all rice items in units, 24 stores, Fresno, Calif., April 29 - September 21, 1957

Type of rice	Number of rice items 1/	Sales in units in week--											
		P1 2/	P2 2/	1	2	3	4	5	6	7	8	9	10
Quick-cooking and prepared:													
Insta	1	--	--	46.5	52.1	11.8	13.6	11.3	8.8	5.0	5.6	7.8	9.9
Canned spanish	1	6.0	7.0	6.1	4.4	5.5	4.2	3.3	3.3	4.7	4.2	3.6	6.0
Canned long-grain white	2	0	0.2	0.7	0.7	0.7	0	0.8	0.5	0	0.7	0.3	0.2
Brand "A" quick-cooking	2	14.8	12.2	11.3	10.4	10.0	10.4	10.4	13.7	8.4	11.0	11.0	13.0
Brand "B" quick-cooking	2	3.8	2.6	3.2	3.7	3.2	2.7	3.0	3.6	2.6	1.8	2.6	2.8
Parboiled	7	1.8	2.2	2.0	1.6	1.6	1.7	1.7	1.4	2.1	1.6	3.1	2.5
Regular dry rice:													
Long grain	18	7.8	5.2	5.4	5.6	7.1	7.5	7.0	8.5	4.6	6.7	5.3	5.9
Medium grain	26	4.4	4.0	4.5	5.0	3.3	3.8	3.6	4.0	5.7	3.7	4.1	4.5
Short grain	10	2.5	1.9	3.1	2.5	1.5	1.8	1.5	3.1	2.1	1.3	2.4	2.8
Brown rice	3	3.2	3.1	3.7	4.0	2.4	3.2	2.9	2.8	3.0	3.1	3.1	3.2
All rice	72	--	--	--	--	--	--	--	--	--	--	--	--

1/ Unit sales were obtained separately by type of rice, brand, and size of sales unit, but are presented here by type of rice only.

2/ Pretest week.

Continued-

Table 4.--Average sales per store of all rice items in units, 24 stores, Fresno, Calif., April 29 - September 21, 1957-Continued

Type of rice	Sales in units in week-- (Continued)									Total sales	Average sales per week
	11	12	13	14	15	16	17	18	19		
Quick-cooking and prepared:											
Insta	4.8	5.4	4.9	2.8	2.3	2.1	1.8	1.8	4.2	202.5	10.7
Canned spanish	4.1	6.9	6.4	5.8	--	--	--	--	--	81.5	5.1
Canned long-grain white	0.3	0.2	0.3	0.5	--	--	--	--	--	6.1	0.4
Brand "A" quick-cooking	11.8	14.8	13.6	13.6	9.5	7.4	8.8	10.1	10.4	236.2	11.3
Brand "B" quick-cooking	2.5	1.8	2.8	2.9	--	--	--	--	--	45.6	2.9
Parboiled	2.1	1.9	2.5	2.5	--	--	--	--	--	32.3	2.0
Regular dry rice:											
Long grain	7.6	7.3	6.3	6.4	--	--	--	--	--	103.9	6.5
Medium grain	5.0	4.4	3.1	4.2	--	--	--	--	--	67.1	4.2
Short grain	2.5	2.6	1.7	1.7	--	--	--	--	--	35.0	2.2
Brown rice	3.4	2.9	2.8	3.8	--	--	--	--	--	50.5	3.2
All rice	--	--	--	--	--	--	--	--	--	--	4.8

Insta Rice represents about 41 percent of the total combined sales of these 2 products for the 14-week period. Omitting the 2 demonstration weeks, Insta Rice sales represent about 28 percent of the total sales.

During the 3d, 4th, and 5th weeks, sales of both regular short-grain rice and Insta Rice declined. The decline in Insta Rice sales was, no doubt, due to the fact that it no longer was receiving heavy promotion. During the 9th and 10th weeks, when Insta Rice sales increased because of the special promotion, dry short-grain rice sales remained at substantially the same level as during the week preceding the promotion and continued at about this same level during the week following the promotion. Also, since sales of Insta Rice were highest in stores that sold only small quantities of dry short-grain rice (table 2)--stores that primarily served the white, medium- and high-income groups--it is probable that a product similar to Insta Rice would help create a new market for California short-grain rice.

In 1954, a study made by the staff of Progressive Grocer in 5 Foodtown supermarkets in Cleveland, Ohio, showed that of the 2,983 grocery and frozen food items carried, 80 percent sold less than one case of 24 units per week in each store. For each $20,000 of weekly store volume, the average sales for all grocery and frozen food items were 8 units per store per week, or about one-third case, with many items selling much less than this. Each of the 5 stores stocked 11 dry rice items, and for the 13-week period, April 5 to July 3, 1954, the average weekly sales per $20,000 of weekly store volume were a little over 8 units per dry rice item.

A more recent study, conducted in 6 supermarkets of the Super Valu voluntary group in 6 North Central States, showed that for all of the 4,203 grocery items carried, excluding the perishables, the average sales were only slightly more than 8 units or one-third case per item per week for each $20,000 of weekly store volume. 10/ Many grocery items, of course, sold much less than one-third case per store per week. Each of the stores also stocked 11 dry rice items, and for the 12-week period, February 25 to May 18, 1957, the average weekly sales for the same dollar volume were about 7.5 units per dry rice item.

Sales of Insta Rice through the 22 non-audit stores, which received sales stimulus only from the advertising conducted during the first 4 weeks because no demonstrations or special promotions were held in such stores, totaled 130 cases for the entire 19-week period. Thus, Insta Rice sales through the non-audit stores, which received only limited benefit from the promotional campaign, averaged about 7.5 units per store per week or about one-third case for the entire period. Therefore, Insta Rice, with some promotion, sold about as well as the average grocery and rice item sold in the stores surveyed in Cleveland and in 6 North Central States.

10/ Progressive Grocer. Super Valu Study. (pp. 17-32.) 1957.

CONCLUSIONS

Increased consumer demand for easy-to-prepare attractive foods of good quality presents the rice industry with the opportunity of marketing a canned cooked rice of good quality.

While the sales position of Insta Rice in the Fresno market test may not have been sufficiently high to encourage large investments in new facilities for processing and distributing canned rice alone, unless actual commercial undertakings indicate such investments would be profitable, sales rates were as high as for a number of presently available grocery items. Thus, Insta Rice merits consideration by established canners as an addition to their present line of products. With little additional investment, an established canner could process canned cooked rice as an "off-season" item, and thus distribute processing and selling costs over a multiproduct line.

It is believed that with continued retail promotion of the same intensity as that used with other established grocery products, and with the product improvements indicated by the test, canned cooked rice can achieve a sales rate equal to that of many grocery products stocked in retail grocery stores today.

APPENDIX

Technical Notes on the Consumer Survey

Sampling procedures.--The sample used in this survey was designed to be representative of all households in the Fresno metropolitan area. Clusters of 10 dwelling units were drawn systematically from the city directory, and the homemaker at each address from the first up to, but not including, the last was considered an eligible respondent. This procedure corrected for any changes that may have occurred between the time of publication of the directory and the time of the survey.

To provide for an over-sampling of users of the test product, the sample was divided into two equal parts. In the first half all homemakers were eligible for interview; in the second half only users of Insta Rice were interviewed.

Sample variability.--Data obtained from sample surveys are subject to sampling error and may differ somewhat from the results of a complete census. Statistical techniques are, however, available for estimating the magnitude of this difference. For example, survey results indicate that 9 percent of the homemakers in the Fresno area had used Insta Rice one or more times during the period of the market test that preceded the survey. The chances are about 2 out of 3 that the value obtained from a census would fall between 10.2 percent and 7.8 percent.

Estimates of the magnitude of the error due to sampling are also required when comparisons are made between subgroups within the sample. Results of the survey show that 19 percent of the respondents in the upper income group and 24 percent of the respondents in the middle income group serve rice 5 or more times a week. The chances are only 1 in 3 that a difference as large as this would occur if there were in fact no difference in the frequency of use of rice in the 2 income groups.

The formula used for determining confidence intervals was: $1.25\sqrt{\frac{pq}{n}}$

where p is the proportion of respondents possessing a given characteristic,
q is the proportion of respondents not possessing the characteristic (100-p), and
n is the number of cases.

The formula used for determining the significance of differences between subgroups within the sample was:

$$1.25\sqrt{\frac{p_1 q_1}{n_1} + \frac{p_2 q_2}{n_2}}$$

where p, q, and n have the same meanings as before and the subscripts refer to different subgroups.

The factor 1.25 in both formulas was used to correct for the effects of clustering. Experience with samples similar in design to the one used in this survey indicates that this weighting provides a satisfactory correction for formulas used in making estimates from simple random samples.

Table 5.--Replies to the question, "Have you seen or heard about this new product?"

Use of rice	Replies			
	Yes	No	Total	Homemakers 1/
	Percent	Percent	Percent	Number
Rice users	45	55	100	821
Frequent users	40	60	100	221
Moderate users	50	50	100	337
Infrequent users	42	58	100	248
Rice nonusers	43	57	100	68
All homemakers	45	55	100	889

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 6.--Replies to the question, "Do you happen to know if this kind of rice is being sold around here?"

Use of rice	Replies				
	Yes	No	Not asked	Total	Homemakers 1/
	Percent	Percent	Percent	Percent	Number
Rice users	30	15	55	100	821
Frequent users	24	16	60	100	221
Moderate users	34	16	50	100	337
Infrequent users	30	12	58	100	248
Rice nonusers	19	24	57	100	68
All homemakers	30	15	55	100	889

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 7.--Replies to the question, "Is this the rice you mean?"

Use of rice	Replies				
	Yes	No	Not asked	Total	Homemakers 1/
	Percent	Percent	Percent	Percent	Number
Rice users	28	3	69	100	821
Frequent users	22	2	76	100	221
Moderate users	31	3	66	100	337
Infrequent users	27	3	70	100	248
Rice nonusers	10	9	81	100	68
All homemakers	27	3	70	100	889

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 8.--Relationship between background characteristics of the homemaker and awareness of the availability of Insta Rice

Background characteristics	Homemakers who were--			
	Aware	Not aware	Total	Homemakers 1/
	Percent	Percent	Percent	Number
Family income group: 1/				
Upper	28	72	100	228
Middle	31	69	100	327
Lower	20	80	100	199
Educational level: 2/				
College	30	70	100	211
High school	28	72	100	422
Grammar school	20	80	100	243
Race: 3/				
White	28	72	100	809
Other	12	88	100	77

1/ Income was not ascertained for 135 respondents.
2/ Education was not ascertained for 4 respondents.
3/ Race was not ascertained for 3 respondents.

Table 9.--Sources of awareness of the availability of Insta Rice

Source of awareness	Homemakers who--		
	Were aware of availability of Insta Rice	Had used Insta Rice	Had not used Insta Rice
	Percent 1/	Percent 1/	Percent 1/
Radio, television, newspapers	44	35	52
Store displays	38	33	21
Store demonstrations	28	36	39
Other	9	11	8
Number of homemakers	277	126	151

1/ Percentages add to more than 100 because some respondents mentioned more than one source of awareness.

Table 10.--Relationship between source of awareness of the availability of Insta Rice and use of the product

Homemakers who	Source of awareness		
	Store demonstration	Store display	Radio, television, newspapers
	Percent	Percent	Percent
Had used Insta Rice	48	32	26
Had not used Insta Rice	52	68	74
Total	100	100	100
Number of homemakers	60	87	105

Table 11.--Relationship between background characteristics and use of Insta Rice

Background characteristics	Homemakers who--			
	Had used Insta Rice	Had not used Insta Rice	Total	Homemakers
	Percent	Percent	Percent	Number
All respondents:	9	91	100	889
Family income groups: 1/				
Upper	7	93	100	228
Middle	10	90	100	327
Lower	9	91	100	199
Educational level: 2/				
College	7	93	100	211
High school	10	90	100	422
Grammar school	8	92	100	243
Race: 3/				
White	10	90	100	809
Other	--	100	100	77
Use of rice: 4/				
Frequent	9	91	100	221
Moderate	10	90	100	335
Infrequent	6	94	100	248
Use of other forms of rice:				
Regular	9	91	100	681
Quick cooking	9	91	100	417
Spanish rice	14	86	100	138
Size of household:				
Small	8	92	100	361
Medium	9	91	100	324
Large	9	91	100	201

1/ Income was not ascertained for 135 respondents.
2/ Education was not ascertained for 13 respondents.
3/ Race was not ascertained for 3 respondents.
4/ Frequency of serving rice was not ascertained for 15 respondents.

Table 12.--Replies to the question, "Have you heard about rice of different grain lengths?"

Replies	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, have heard of different grain lengths	70	75	72	65
No, have not heard of different grain lengths	30	25	28	35
Total	100	100	100	100
Number of homemakers 1/	821	221	337	248

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 13.--Replies to the question, "Which lengths have you heard about?"

Replies	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Long, short	42	47	42	38
Long	18	17	18	18
Long, medium, short	5	6	7	3
Long, medium	3	3	3	4
Medium	1/	--	1/	1
Other	2	2	2	1
Have not heard of different grain lengths	30	25	28	35
Total	100	100	100	100
Number of homemakers 2/	821	221	337	248

1/ Less than 1 percent.
2/ Frequency of use of rice was not ascertained for 15 respondents.

Table 14.--Reasons homemakers gave for liking rice of a particular grain length

Reasons	Homemakers who prefer a particular grain length 1/
	Percent 2/
Cooking properties	85
Flaky, fluffy, grains stand apart	40
Not mushy or gummy	26
Cooks up better	7
Not starchy	5
Has more body to it	3
Cooks quickly	2
More moist	2
Miscellaneous	3/
Appearance	29
Looks better	21
Not broken up	7
Whiter	1
Habit	15
Always have	9
Brand preference	3
Just do	2
Family preference	1
Flavor	5
Good, tasty	5
Miscellaneous	3
Number of homemakers	401

1/ Separate tabulations were not made for the different preferred grain lengths since the numbers of homemakers who preferred other than long-grain rice were too small for separate analysis.

2/ Percentages add to more than their subtotals and these add to more than 100 because some homemakers gave more than one reason.

3/ Less than 1 percent.

Table 15.--Replies to the question, "Which (grain length) do you like best?"

Replies	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Long	92	92	95	89
Short	5	5	2	8
Medium	2	2	3	2
Not ascertained	1	1	1/	1
Total	100	100	100	100
Number of homemakers 2/	401	137	164	93

1/ Less than 1 percent.
2/ Frequency of use was not ascertained for 15 respondents.

Table 16.--Relationships between intention to buy Insta Rice again and replies to 4 opinion items and between repeat purchases and replies to 4 opinion items

Item	Coefficient of correlation 1/	Significance of the difference from zero 2/
Intend to buy again:		
Cooks as well	0.50	0.01
Tastes as good	0.45	0.01
Costs no more	0.29	0.01
No trouble removing from can	--	--
Have bought more than once:		
Tastes as good	0.24	0.01
Costs no more	0.20	0.05
Cooks as well	0.19	0.05
No trouble removing from can	0.10	0.30

1/ The phi coefficient or $\sqrt{\frac{x^2}{n}}$.

2/ Level of significance of chi square.

Table 17.--Reasons aware respondents gave for not having bought Insta Rice

Reasons	Homemakers who were aware of the availability of Insta Rice
	Percent 1/
Reasons which indicate probable future purchase	17
Want to use up present supply of rice first	10
Intend to purchase	4
Haven't had an occasion (Answer implies future intention)	3
Have forgotten to buy	1
Reasons which do not indicate probable future purchase	44
Prefer other kind of rice	13
Like to cook for self	9
Canned rice costs too much	7
Dislike of canned foods	6
Restricted diet	5
Can too small for family	4
Doesn't like to try new things	3
Regular rice simple to cook	2
Miscellaneous reasons which do not indicate future purchase	3
Reasons which are ambiguous with respect to future purchase	37
Don't particularly care for rice	19
Adequate supplies on hand	10
Habit of using other rice	6
Just haven't tried it	3
Don't do much cooking	2
Don't like starchy foods	1
Miscellaneous reasons ambiguous with respect to future purchase	3
Not ascertained	2
Number of homemakers	151

1/ Percentages add to more than their subtotals because some homemakers gave more than one reason.

Table 18.--Relationship between background characteristics and use of rice in Fresno, Calif.

Background characteristic	Homemakers who--			Homemakers
	Serve rice	Do not serve rice	Total	
	Percent	Percent	Percent	Number
Income level: 1/				
Upper	92	8	100	228
Middle	94	6	100	327
Lower	94	6	100	199
Education: 2/				
College	92	8	100	243
High school	92	8	100	422
Grammar school	93	7	100	211
Race: 3/				
White	92	8	100	809
Other	97	3	100	77
Size of household: 4/				
Small	89	11	100	361
Medium	94	6	100	324
Large	95	5	100	201

1/ Income was not ascertained for 135 respondents.
2/ Education was not ascertained for 13 respondents.
3/ Race was not ascertained for 3 respondents.
4/ Size of household was not ascertained for 3 respondents.

Table 19.--Relationship between background characteristics and frequency of use of rice in Fresno, Calif.

Background characteristics	Homemakers who are--				Homemakers 1/
	Frequent users	Moderate users	Infrequent users	Total	
	Percent	Percent	Percent	Percent	Number
Income group: 2/					
Upper	19	51	30	100	214
Middle	24	41	35	100	301
Lower	38	37	25	100	178
Education: 3/					
College	16	51	31	100	211
High school	24	43	33	100	389
Grammar school	42	32	16	100	224
Race: 4/					
White	24	43	33	100	729
Other	64	27	9	100	74
Size of household: 5/					
Small	22	38	40	100	315
Medium	24	46	30	100	298
Large	41	42	17	100	189

1/ Frequency of use of rice was not ascertained for 15 respondents.
2/ Income was not ascertained for 135 respondents.
3/ Education was not ascertained for 13 respondents.
4/ Race was not ascertained for 3 respondents.
5/ Size of household was not ascertained for 3 respondents.

Table 20.--Replies to the question, "In the past year have you used any regular rice--that is, rice that has not been precooked?"

Reply	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, have used in the past year	83	96	83	74
No, have not used in the past year	16	4	16	26
Not ascertained	1	--	1	1/
Total	100	100	100	100
Number of homemakers 2/	821	221	337	248

1/ Less than 1 percent.
2/ Frequency of use of rice was not ascertained for 15 respondents.

Table 21.--Replies to the question, "Have you used any quick-cooking rice?"

Reply	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, have used in the past year	51	49	52	52
No, have not used in the past year	47	50	47	46
Not ascertained	2	1	1	2
Total	100	100	100	100
Number of homemakers 1/	821	221	337	248

1/ Frequency of use of rice was not ascertained for 15 homemakers.

Table 22.--Replies to the question, "Have you used any canned spanish rice?"

Reply	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, have used in the past year	17	18	18	15
No, have not used in the past year	80	80	80	81
Not ascertained	3	2	2	4
Total	100	100	100	100
Number of homemakers 1/	821	221	337	248

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 23.--Replies to the questions, "Have you bought (regular white rice) (quick-cooking rice) (spanish rice) in the past 2 weeks?"

Reply	Kind of rice		
	Regular white rice	Quick-cooking rice	Spanish rice
	Percent	Percent	Percent
Yes, have bought in past 2 weeks	33	13	2
No, have not bought in past 2 weeks	67	87	98
Not ascertained	1/	--	--
Total	100	100	100
Number of homemakers	821	821	821

1/ Less than 1 percent.

Table 24.--Replies to the question, "Have you bought any regular rice in the past 2 weeks?"

Reply	Homemakers who use rice		
	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent
Yes, have bought in past 2 weeks	53	36	11
No, have not bought in past 2 weeks	42	47	63
Do not use regular rice	4	16	26
Not ascertained	1	1	--
Total	100	100	100
Number of homemakers 1/	221	337	248

1/ Frequency of use of rice was not ascertained for 15 homemakers.

Table 25.--Replies to the question, "Have you bought any quick-cooking rice in the past 2 weeks?"

Reply	Homemakers who use rice		
	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent
Yes, have bought in past 2 weeks	19	15	4
No, have not bought in past 2 weeks	28	35	42
Do not use quick-cooking rice	50	47	46
Not ascertained	3	3	8
Total	100	100	100
Number of homemakers 1/	222	337	248

1/ Frequency of use was not ascertained for 15 homemakers.

Table 26.--Replies to the questions, "How much (regular white rice) (quick-cooking rice) did you buy?"

Quantity	Homemakers who had bought each form of rice in the 2 preceding weeks	
	Regular rice	Quick-cooking
	Percent	Percent
1 pound	28	42
2 pounds	45	23
3 pounds	5	5
4 pounds	3	1
5 pounds	3	1
6 pounds	1	--
7 pounds	1	--
8 pounds	1/	--
9 and more pounds	5	--
Not ascertained	9	28
Total	100	100
Number of homemakers	269	103

Table 27.--Replies to the question, "Do you serve rice for the evening meal?"

Reply	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, serve rice for evening meal	92	93	94	91
No, do not serve rice for evening meal	6	6	6	8
Not ascertained	2	1	1/	1
Total	100	100	100	100
Number of homemakers 2/	821	221	337	248

1/ Less than 1 percent.
2/ Frequency of use of rice was not ascertained for 15 respondents.

Table 28.--Replies to the question, "Do you serve rice for the midday meal?"

Reply	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, serve rice for midday meal	32	45	29	25
No, do not serve rice for midday meal	59	45	65	65
Not ascertained	9	10	6	10
Total	100	100	100	100
Number of homemakers 1/	821	221	337	248

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 29.--Replies to the question, "Do you serve rice for dessert?"

Reply	Homemakers who use rice			
	All users	Frequent users	Moderate users	Infrequent users
	Percent	Percent	Percent	Percent
Yes, serve rice for dessert	54	62	57	43
No, do not serve rice for dessert	45	38	43	57
Not ascertained	1	--	1	--
Total	100	100	100	100
Number of homemakers 1/	821	221	337	248

1/ Frequency of use of rice was not ascertained for 15 respondents.

Table 30.--Replies to the questions, "How often do you serve rice for (the evening meal) (the midday meal) (dessert)?"

Frequency	Homemakers who serve rice for		
	Evening meal	Midday meal	Dessert
	Percent	Percent	Percent
Once a month or less	33	33	68
2 to 4 times a month	42	34	20
5 and more times a month	21	20	6
Not ascertained	4	13	6
Total	100	100	100
Number of homemakers	758	261	443

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